

# NOUR'S WORLD



## Digital Program for Children's Emotional Wellbeing

Research report

**TNO** innovation  
for life





## 1

# Introduction

*Nour's World* was designed by Thaki (NGO for digital learning) and TNO (Netherlands Organisation for Applied Scientific Research), through a grant from the Netherlands Enterprise Agency, RVO.

In Arabic, Nour means 'light' and is both a boy's and girl's name.

*Nour's World* (also referred to as Nour) is a universal mental health and psychosocial support program for children aged 5 to 8 years with elements of Cognitive Behavioral Therapy (CBT) and Emotion Focused Therapy (EFT). Rooted in contemporary scientific insights, Nour offers physical and mental strategies to recognize, communicate about, and regulate emotions through the adventures of 'Nour the rabbit'. The program is built upon the same effective core elements as the predecessor program, 'Build your Own Buddy' (BoB)<sup>1</sup>, also developed by TNO (and Help a Child; granted by the Dutch Relief Alliance; Stam et al, submitted 2023) and implemented in several African regions.

BoB was culturally adapted to the Arabic language and to Lebanese school settings, addressing both refugee and host community children. As a distinction to BoB, Nour is hybrid (in person and digital) and consists of an application for children, their teachers and their parents or caregivers, accessible through a smartphone and on Thaki laptops for offline use. The program offers in-person group activities, both in the classroom and outdoors, in addition to fun learning activities for children to do individually and in small groups. For teachers the Nour program is self-guided so that they don't need to enroll in specialized training.

Although its predecessor program BoB was successful and improved the social emotional well-being of children in Africa significantly, it was important to monitor the adapted version Nour in a pilot implementation under the same evaluation parameters. The results are presented below.

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<sup>1</sup> <https://publications.tno.nl/publication/34640055/07bQkm/TNO-2022-build.pdf>



2

Monitoring and evaluating  
the pilot implementation



## 2

## Monitoring and evaluating the pilot implementation

The Nour program was piloted, from April to October 2023, in five disadvantaged and refugee schools in Lebanon, reaching one class per school. Schools started and finished the program at different moments. One school had a break of approximately four weeks halfway through the program, but all schools finished the full program. In total 305 children participated in the Nour program.

The pilot implementation of the Nour program was monitored and evaluated by mixed method design, both quantitative and qualitative. Measurement instruments used across the pilot included:

- > Pre- and post-measure questionnaire filled in by parents and caregivers, comprising:
  - background variables,
  - 4 constructed questions on parental competences, 3-point scale answering,
  - Strengths and Difficulties Questionnaire (SDQ)<sup>2</sup>, Arabic online parent version, consists of 25 questions (3-point scale responses) that load 5 subscales (emotional symptoms, conduct problems, hyperactivity/inattention, peer-related problems, prosocial behavior) and a total score.
  - appraisal of the Nour app (only post-measure).

Questionnaires were mostly filled out online; for illiterate parents and caregivers, the questions were read out loud by Thaki field workers by phone or in a private interview.

- > Pre- and post-measure surveys quantified the children's overall mood over the past week, as observed by their teacher.
- > Focus group discussions with:
  - Teachers (online with Thaki and TNO researchers)
  - Parents (live with Thaki field workers)
  - Children (live - online with one group - with Thaki field workers)
- > Structured observations during field visits by Thaki field workers.

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<sup>2</sup> Goodman R (1997) The Strengths and Difficulties Questionnaire: A Research Note. *Journal of Child Psychology and Psychiatry*, 38, 581-586.

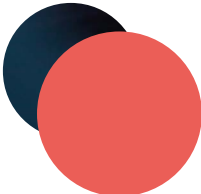
Qualitative data were coded thematically and analyzed with the help of software (Atlas.ti). Quantitative data were analyzed through SPSS28. Descriptive statistics and paired T-tests were applied for pre-post comparisons.

Procedures for data collection and data management were GDPR-compliant and authorized by the TNO Ethics Board for Research with Humans (#2022-061). Parents or caregivers received information and gave signed informed consent before the onset of monitoring and evaluation. Thaki and TNO signed a Joint Controller Agreement on data processing. Data were pseudonymized and reported anonymized.



3

Quantitative results



## 3

## Quantitative results

### Participants

In total 305 children participated in the program. For the quantitative results, we selected parents who filled in both pre- and post-measure questionnaires. Parents of 276 participating children filled in the pre-measure questionnaire and 214 of them also answered the post-measure questionnaire. This group of parent-child dyads was quite evenly distributed among the five participating schools (Table 1). Reasons for non-response at pre- and post-measure were mostly due to parents working, not being able to travel to the school, or not possessing a phone. No parents opted out of their child's participation in the Nour program, or the monitoring and evaluation.

The distribution between boys and girls was even (49% girls of 214 children).

The questionnaires were mostly filled in by mothers (70%); 16% by fathers and 14% by someone other than a parent (e.g. grandparent or older sibling).

SCHOOL	NUMBER OF CHILDREN
Zahle	41
Borderless	44
Pine School	36
Tuyour	41
Malaak	52
TOTAL	214

**Table 1.** Number of children with complete sets of pre- and post-measure per school.

Although the target age group for the Nour program is 5 to 8 years, the program was implemented in classes with a variety of ages, ranging from 5 to 12 years. Approximately half of all participating children fell into the target age group; others were mostly older than 8 years.

For 18% (38) of the 214 children the reported age was unreliable. At post-measure, these children were for instance reported as being younger, or 2 years older, than at pre-measure. Reasons for this are not known.



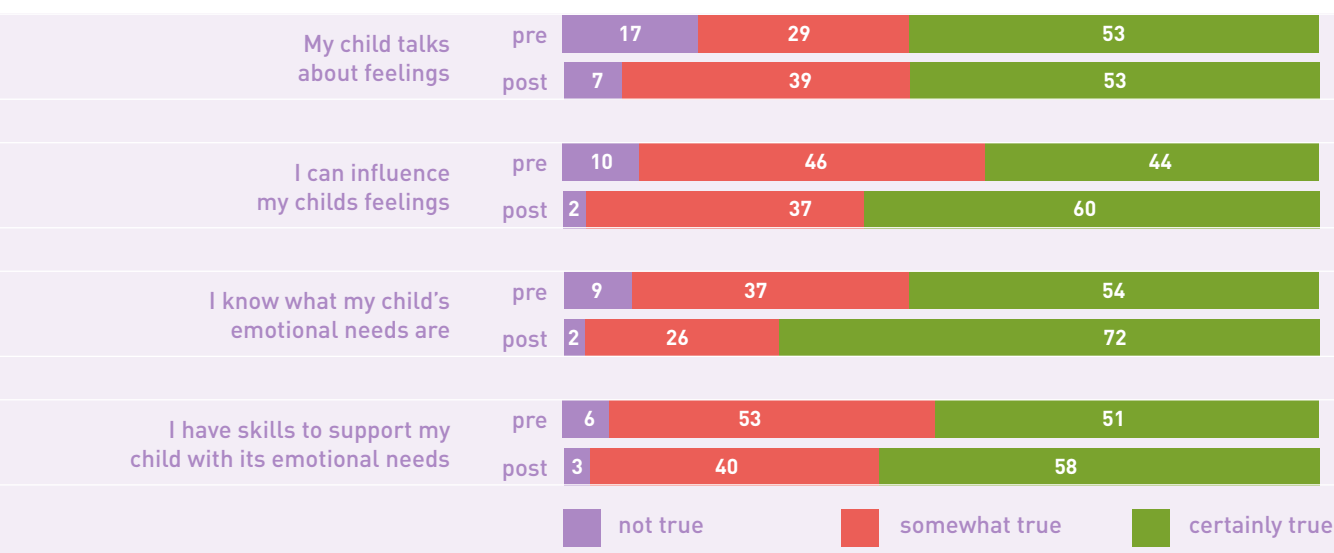
## Parental competences

Parental competences were assessed by four questions with three response options (not true, somewhat true, and certainly true). Figure 1 shows the results at pre- and post-measure.

On the following three items, the scores improved significantly between pre- and post-measure:

- > 'I believe I can influence how my child feels'
- > 'I know what the emotional needs of my child are'
- > 'I have the skills to emotionally support my child'

Table 2 shows the numbers of positive, negative and no changes, per question.



**Figure 1.** Parental competences as reported by parents at pre- and post-measure (in rounded %)

	DIFFERENCE BETWEEN PRE- AND POST ASSESSMENT			Significance*
	Improvement (%)	No change (%)	Decline (%)	
My child talks about his/her current feelings	57 (27)	111 (52)	46 (21)	n.s.
I believe I can influence how my child feels	73 (34)	109 (51)	32 (15)	Z=-3.904; p < .001
I know what the emotional needs of my child are	73 (34)	112 (52)	29 (14)	Z=-4.258; p < .001
I have the skills to emotionally support my child	66 (31)	118 (55)	30 (14)	Z=-3.572; p < .001

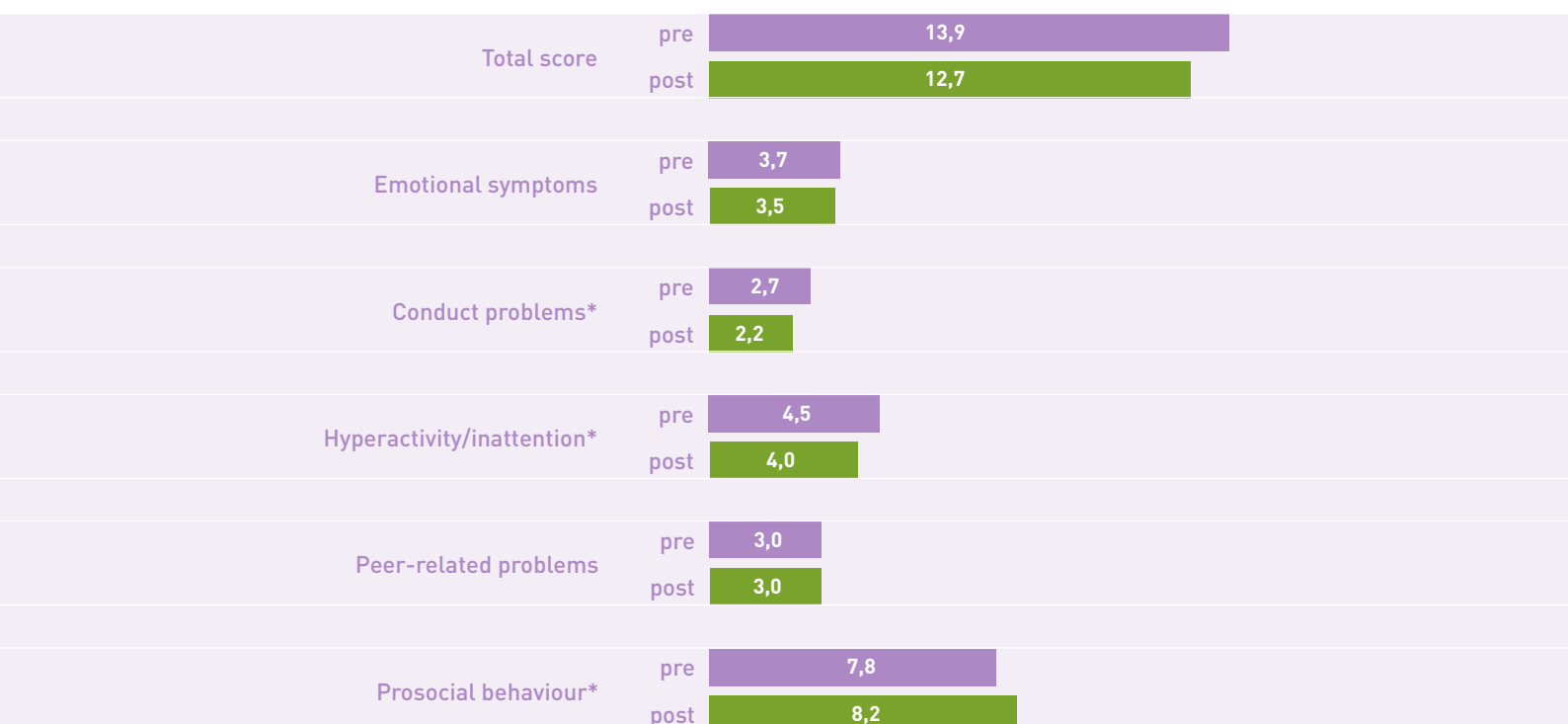
**Table 2.** Number and percentage of parents that improved, declined in, or reported no change regarding their parental competences, at pre- and post-measure.

\* Asymptotic Sign test

## Strengths and Difficulties Questionnaire (SDQ)

The SDQ comprises 25 questions on five behavioral aspects, leading to five sub-scores, and a total score.

Significant improvements were observed in mean total score and three of the five sub-scores: 'conduct problems', 'hyperactivity/inattention', and 'prosocial behavior' (Figure 2). 'Emotional symptoms' and 'peer-related problems' did not change significantly between pre- and post-assessment. Individual changes (number of increases and decreases) can be found in Table 3.



**Figure 2.** Mean SDQ- scores (total score and subscale scores) at pre- and post-measure (N=214).

NOTE: A low score is positive/strength; high score is negative/difficulty; for the subscale Prosocial behavior this is the reverse: a high score is positive/strength and a low score is negative/difficulty.

\*p<0.05 One-sided Student's t-test

SDQ-SCORES	Decrease (%)	Same score (%)	Increase (%)
Total score	107 (50)	18 (8)	89 (42)
Emotional symptoms	88 (41)	41 (19)	85 (40)
Conduct problems	92 (43)	58 (27)	64 (30)
Hyperactivity/inattention	106 (50)	41 (19)	67 (31)
Peer-related problems	80 (37)	44 (21)	90 (42)
Prosocial behavior	65 (30)	57 (27)	92 (43)

**Table 3.** Number and percentage of children that decreased or increased their SDQ- total scores.

NOTE: A low score is positive/strength; high score is negative/difficulty; for the subscale Prosocial behavior this is the reverse: a high score is positive/strength and a low score is negative/difficulty.

Because of the extended age range of participating children, the mean SDQ-scores and differences over time were also determined separately for children in the target group aged 5 to 8 years and those that were 8 to 12 years. Children with unreliably reported ages (n = 38) and children under 5 years (n = 4) were excluded from these analyses. In both groups, significant improvements in total SDQ-scores were observed. However, the pattern seemed to differ: the younger children (5 to 8 years) improved on one subscale (emotional symptoms); the older group (8 to 12 years) improved on three subscales: conduct problems, hyperactivity/inattention, and prosocial behavior. Interestingly, at pre-measure, they were reported to have more problems (on all subscales) compared to the younger children (Table 4.). This means that their 'window for improvement' was bigger. Another explanation could be that they profited more from the Nour program. More research is needed to find an explanation for this.

		PRE-MEASURE		POST-MEASURE		SIGNIFICANCE*
		MEAN	SD	MEAN	SD	
5-8 years (n = 101)	Emotional symptoms	3.82	2.496	3.28	2.122	t(100)=2.189; p = .015
	Conduct problems	2.49	1.890	2.29	1.717	n.s.
	Hyperactivity/inattention	4.19	2.599	3.98	2.232	n.s.
	Peer-related problems	2.90	1.628	2.77	1.476	n.s.
	Prosocial behavior	8.03	1.957	8.27	1.649	n.s.
	Total score	13.40	6.469	12.32	5.669	t(100)=1.783; p = .039
Older than 8 years (n= 71)	Emotional symptoms	4.01	2.723	3.94	2.177	n.s.
	Conduct problems	3.10	1.987	2.23	1.734	t(70)=3.227; p<.001
	Hyperactivity/inattention	5.13	2.437	4.32	2.082	t(70)= 2.602; p = .006
	Peer-related problems	3.44	2.109	3.11	1.459	n.s.
	Prosocial behavior	7.93	1.807	8.35	1.568	t(70)=-1.757; p = .042
	Total score	15.68	6.371	13.61	5.525	t(70) = 2.635; p = .005

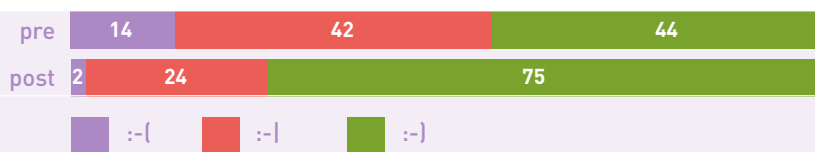
**Table 4.** Mean SDQ- scores (total score and subscale scores) at pre- and post-measure in two age groups (5 to 8 years and older than 8 years).

NOTE: A low score is positive/strength; high score is negative/difficulty; for the subscale Prosocial behavior this is the reverse: a high score is positive/strength and a low score is negative/difficulty.

\*One-sided Student's t-test

### Teacher-reported mood of children

Before and after the full Nour program, general mood during the past week of each child was assessed by the teacher through 'smileys' (sad, okay, happy). This resulted in complete information of 305 children. As can be seen in Figure 3, the general mood of the children improved significantly during the program (p<.001; Related samples Sign test).



**Figure 3.** Improvement in children’s mood as reported by teachers at pre- and post-measure (in rounded %; N=305).

On the individual level, 132 children (43% of the total group of 305 children) improved their mood, and only 5 children worsened, according to the teacher. ‘Improved’ is considered a positive difference between pre- and post-measure; from ‘sad’ to ‘okay’ (32), from ‘sad’ to ‘happy’ (9), from ‘okay’ to ‘happy’ (91). Of the 168 children (‘sad’/‘sad’, ‘okay’/‘okay’ and ‘happy’/‘happy’) who remained at the same level, 128 already scored the maximum score (‘happy’) at pre-assessment leaving no room for improvement (so called ‘ceiling effect’) (Table 5).

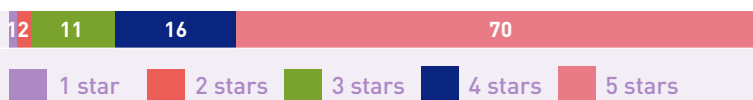
	SAD AT POST-MEASURE	OKAY AT POST-MEASURE	HAPPY AT POST-MEASURE	IMPROVED
Sad at pre-measure	3	32	9	41
Okay at pre-measure	0	37	91	91
Happy at pre-measure	0	5	128	
				<b>132 Total</b>

**Table 5.** Mood in (number of) children as reported by teachers at pre- and post-measure

### Parents’ ratings

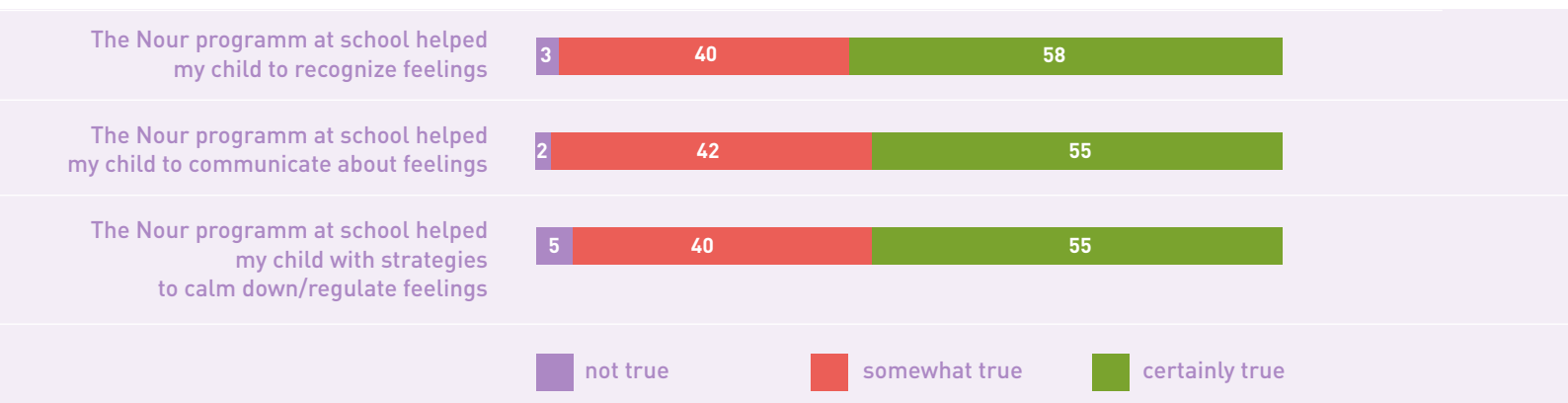
The Nour program:

Parents seemed to be enthusiastic about the Nour program in school: the majority gave 5 out of 5 stars to the program as a whole (Figure 4).



**Figure 4.** Appreciation by parents of the Nour program as a whole (in %)

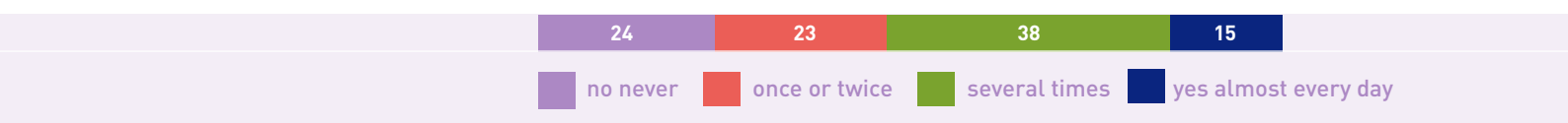
Parents were also positive about the effects of the Nour program on their child. The majority felt it helped their child to recognize and communicate about feelings, and to regulate their emotions (Figure 5).



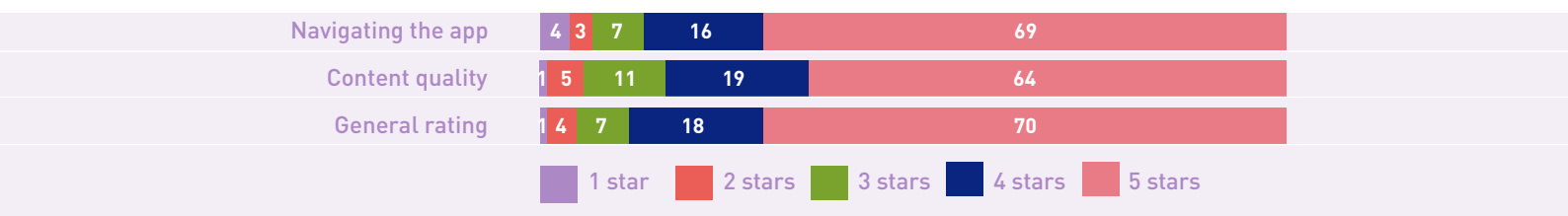
**Figure 5.** Appreciation by parents of the Nour program in terms of outcomes in children and goals of the program (in rounded %).

The Nour app:

The use of the Nour app by parents varied greatly between individuals (Figure 6). Of all completed assessments 33 parents (15%) reported using the app almost every day; 51 parents (24%) reported never having used it. Parents who never used the app gave a variety of explanations, including a lack of time and energy, as well as experiencing technical problems with their phones. When only taking into account the parents that used the app at least once and with no missing values (76% in Figure 6), we see that the Nour app was rated positively regarding the content, navigation, and in general (Figure 7). Parents were also positive about how it helped them to recognize and regulate their own emotions; and to recognize, communicate about and help regulate emotions in the interaction with their child (Figure 8).

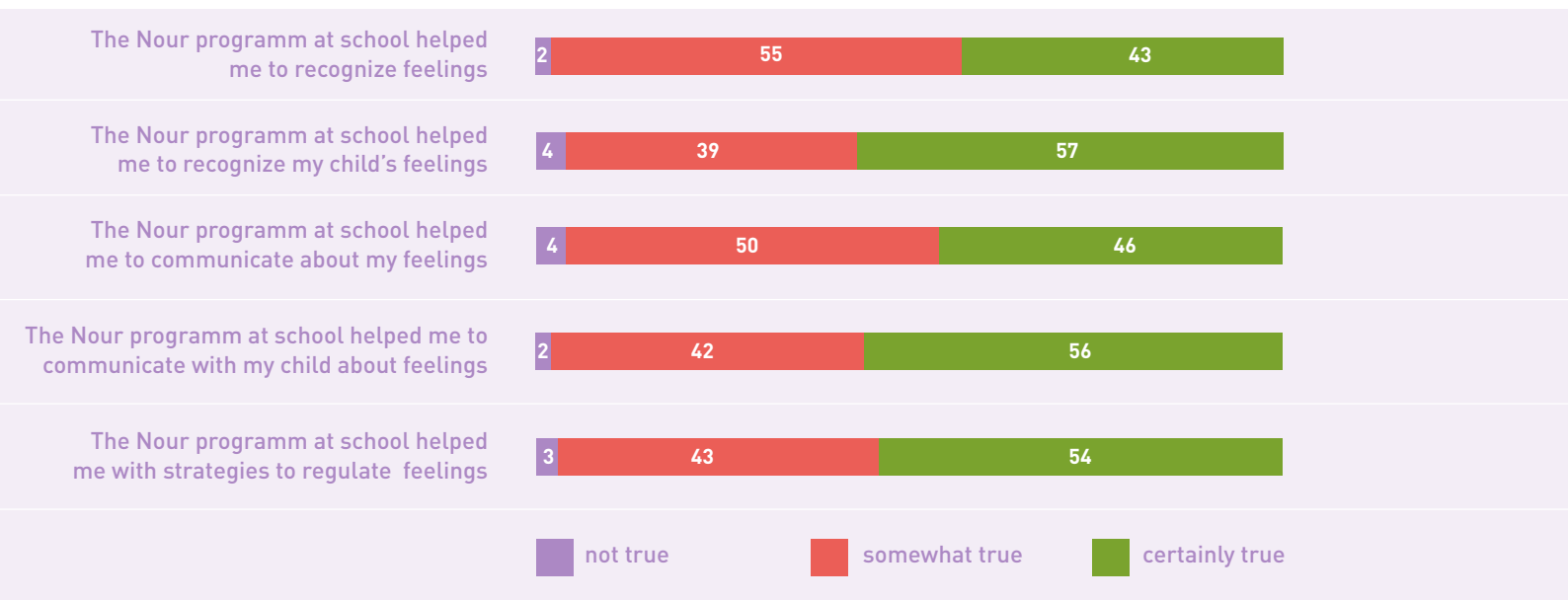


**Figure 6.** Percentages of parents and their use of the Nour app.



**Figure 7.** Appreciation of the Nour app by parents who used the app at least once (in rounded %).





**Figure 8.** Appreciation of the Nour app by parents who used the app at least once, in terms of how it helped them (selves and in interaction with their child) (in %).



4

Qualitative results

## 4

## Qualitative results

The qualitative findings described below are based on:

- > 5 child focus group discussions (one per school), in total 20 children
- > 3 parent focus group discussions (in 3 out of 5 schools), in total 11 parents
- > 5 interviews with teachers of participating classes (in all 5 schools), in total 9 teachers
- > Field visits at all 5 schools for structured observations of a variety of Nour sessions, in total 16 observations

All focus group discussions and interviews were recorded and specific answers and quotes were written down.

During the observations, prepared topic lists were filled in. This resulted in 31 documents that were entered into Atlas.ti for deductive and inductive coding and analysis. In a first analysis of the documents, 608 quotations (relevant pieces of information) were coded with 36 topics. Similar quotations within one document, falling under the same topic, were grouped and coded. Similar topics from different sources (i.e. focus group discussions with children, teachers or parents, and structured observations) were then grouped into 9 topics and coded accordingly (as seen below). In this way quotations may have received several codes, allowing for selection and analyses in different combinations. Information was also analyzed per school to check for bias or skewness. The results from these analyses are presented below, based on the 9 topics:

- > Children's age and appropriateness of the program
- > Appreciation of the Nour program
- > Goal attainment
- > Outcomes in children
- > Implementation (promoting and hindering factors) and fidelity of the program
- > Language
- > Making your Own Buddy
- > Parents' involvement and using the Nour app at home
- > Suggestions for change

### Children's age and appropriateness of the program

During the qualitative data analysis, the topic of the children's age in relation to the appropriateness of the program came up (from several sources). Childrens' ages varied from 5 to 12 years with approximately half of the population falling in the program's target category of children aged 5 to 8 years. The explanation for this is that in the non-formal schools (in refugee areas) the class composition is based on the grade levels of children, not on their biological age. The classes therefore have mixed ages and selecting only the target age group from a class for participation would not have been possible, nor ethical.

Although children's numeric grade levels may be misaligned from their biological age, their social-emotional development usually is consistent with their biological age. For these children the Nour program may have been too easy.

According to the teachers, the Nour program was best suited for children at kindergarten age (4/5 years) up to 7/8 years.

No children, parents or teachers rated the Nour program as too difficult.

### Appreciation of the Nour program

In the focus group discussions with parents and children, and the interviews with teachers, we asked what they thought about the Nour program: did they like it, or not, and why.

All respondents were very positive and enthusiastic about the Nour program. The observations during field visits underpinned this: children were enjoying it, they were eager to answer or take turns answering, and were very engaged during activities (in class, computer labs and outside). Teachers did their utmost to make it fun.



Some children were disappointed at not getting a turn with the activities or answering questions. Some children expressed that they did not like it when Nour was (somewhat) bullied or when the forest was dark and with treacherous music. This, however, is an appropriate reaction and children learn in an exercise in the same session about how Nour dealt with these feelings.

Children liked Nour's adventures and activities in both in-person and digital formats. The below quotes illustrate this: *I liked his face when he became happy (child).*

*It made us feel happy (child).*

*I liked the story of the bird (child).*

*They all wanted to answer (observer).*

*Some children know the adventures by heart (observer).*

*They loved the exercises on the laptops and working in pairs or alone (observer).*

*It was like a story for me, I liked it. It's about relaxation, and my son likes to talk about it (parent).*

...

Interestingly the word 'angry' was expressed more by the children than any other negative or positive emotion. This was especially due to the frequent (50%) recording of the word in (different source documents) regarding one refugee school.

Teachers were positive about the Nour program too:

*It [Nour program] was needed, as it focuses on social-emotional learning .... it was beautiful to see how it positively affected the students' lives. I really liked everything about Nour. (teacher)*

*I like how it is so close for the kids and how the kids imitate Nour in everything (teacher).*

*What I like the most is that the stories are easy and simple, which helps the kids understand their emotions (teacher).*

*The offline application helped me a lot (teacher).*

*I like Nour a lot, especially when I see the reaction of the students... (teacher).*

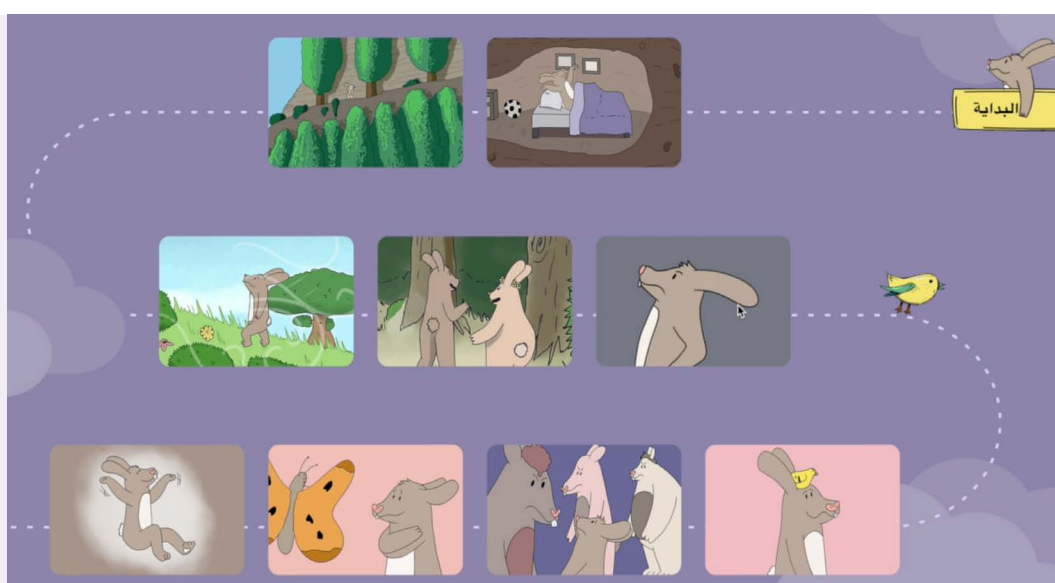


*Especially since there is a section for everyone [parents, kids, teachers] [teacher].*

*When my daughter was nervous about a presentation she had to give at school, I told her to come sit next to me. We did the breathing and stretching from the Plant Exercise and I shared with her the strategy of using her posture of standing strong to feel strong. (teacher during soft launch)*

Only a few 'negative' remarks were made by teachers. Half of these remarks concerned time constraint and (inadequate) preparation; half were related to the issue of the appropriate target group age, for instance:

*I had children aged 9-11 ... they kept asking to play on the laptops. For children aged 11-12, they didn't enjoy watching the session or doing activities, as they felt it was geared towards younger kids. (teacher)*



## Goal attainment

The goals of the Nour program are three-fold:

- > to recognize (your and other people's) feelings
- > to communicate about feelings (through the metaphor of the volcano)
- > to learn and apply strategies on how to regulate (overwhelming) emotions.

In the focus group discussions and interviews we therefore asked what children remembered from Nour and what strategies to regulate emotions were favorite.

The volcano and strategies were well remembered by the children. 'Stand strong, like a tree' and 'Ask for help' seemed to be the most popular strategies.

*He teaches us to stand up like a tree (child)*

*Nour was once with a bird in the forest. The bird encouraged him, and they went back together (child).*

*When we feel angry, we hug ourselves (child)*

*He went to another place to be calm. So, I learned from him that when I don't feel okay, I should change my place (child).*

*The students talked a lot about the volcano. (teacher)*

Teachers also reported the transfer of regulatory strategies to other situations:

*Yes, especially when I'm explaining a lesson in another class. For example, if you're on top of a volcano, take a deep breath (teacher).*

*We frequently used the story of the volcano with the students (teacher).*

*Once I was angry at the students, and one of the students came up to me and said, "You are at the top of the volcano." (teacher)*

*I would suggest the app for other schools, and even with my children at home (teacher)*

## Outcomes in children

According to teachers and parents, the Nour program had positive effects on the children (referring to all children) and since half of the population was older than 8 years, probably even on the older children who were not the actual target group. Parents reported only positive effects, as for instance can be read below.

*My daughter started to sing and dance. She was not like this before. Even when she wakes up, she does so with energy. (parent)*

*My son told me that it helps him to deal with others. (parent)*

*My son came home happy every time he saw the app at school. (parent)*

*Whenever she is sad, she watches Nour (parent).*

*He always repeats the story at home, like the volcano and butterfly (parent).*

*When my kids feel angry, they start the 'Plant Wake Up' exercise, and one of them goes to smell a flower (parent).*

*My daughter started to tell me, "Now you are happy, now you are sad," so she started paying attention to know how I am feeling at the moment. (parent)*

*For him [my son], Nour is an example, and he starts telling me that he is at the bottom or the top of the volcano. He also implements what he learned and wants to be like the tree (parent).*

*It helped us to control our emotions and feelings. The volcano also helped us to not be angry all the time. (parent)*

*He [my son] knows how to express himself now and not to be angry. He always talks about the volcano. (parent)*

*It's helpful. My son used it with me and taught me how to use it. It helped me remember how to deal with him. So, we drew the volcano and put it on the wall. Every time we see the volcano, we remember not to be angry. (parent)*

Teachers reported only positive effects on children:

*I felt that they started to express themselves. One of the students was very shy, but after the program, she started to express herself. (teacher)*



*If someone [a child] was afraid of something, it helped them to talk, especially in grade 1. It helped them a lot. (teacher)*

*One of the students was very shy at the beginning. She used to come and hug me when I was alone. She was very smart, and after a short time, she started participating. The change was very positive. They were like empty books, and I am filling them. (teacher)*

*First of all, they changed a lot in how they interacted with each other, their relationships. They used to bully each other's names, for example, but after each session, they started to change. They saw how we acted with each other, so they changed a lot. They started to love each other more at the end of the year, and they asked us if they could hug each other to say goodbye. (teacher)*

*Some of the students told us that they were not able to distinguish between anger and sadness before, but now they are able to express their feelings in the right way. They also know that feelings can change and are not stable. For example, if they feel angry, they know they can do something they like to calm down. (teacher)*

*Some of the students are now able to express their emotions, especially when using the volcano. Some teachers approached us and told us that the kids were talking about the volcano, so they asked us about it. (teacher)*

*The volcano method was amazing. Because the kids, in general, can't describe how they feel right now. Maybe they don't feel well, but they can't express it by words. I put the image of the volcano up and ask each one of them, 'How are you feeling today?' After just the first session they started to point (on their own bodies) and say, 'I am here, Miss,.' (teacher during soft launch)*

No adverse effects, nor 'red flags' in children's behavior, due to the Nour program, were reported or observed.

## Implementation and program fidelity

In order to understand these qualitative results, it is important to describe the context of the implementation of the Nour program and how it was delivered in practice.

### **Age level:**

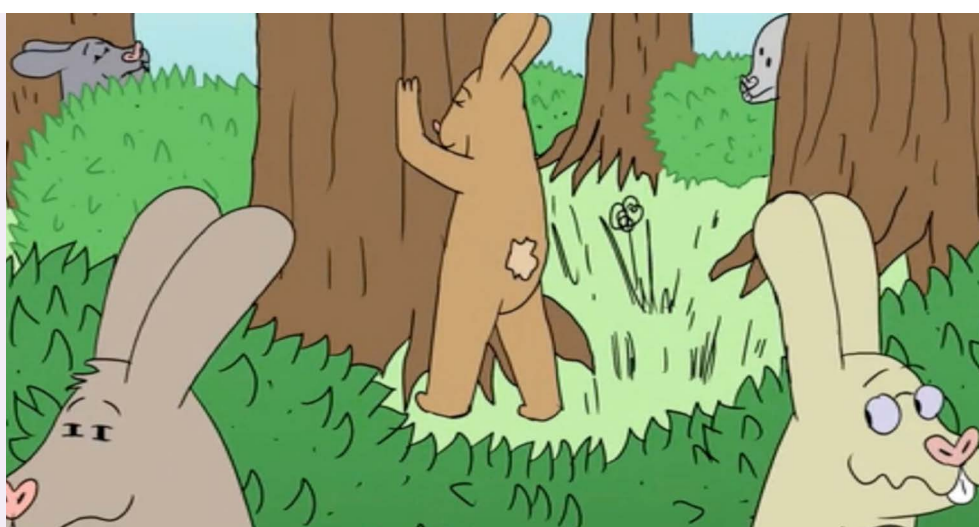
As mentioned before, the target group of children (aged 5 to 8 years) was in most classes mixed with older children. It was therefore not always known if an observation or quote from a parent or teacher regarded the target group or the older children in class. During data-collection this issue was

not apparent for the researchers and was therefore not resolved prior to data collection, for example by asking to focus on the target group only while observing, or including only parents of younger children in focus group discussions.

**Order of the sessions:**

Although the Nour program was set up to be modular after getting to know Nour, the Volcano and making Your Own Buddy, the order of the sessions was mostly followed as presented.

*I followed the order of the application as it was. I felt that they were related to each other, so I thought it was better to follow the app's order. (teacher)*



**Clarity of instructions and goals:**

The goals and process were explained in the beginning of the project. A kick-off meeting was held with teachers and parents shortly before the actual implementation in class, focusing on data-collection, consent from parents, uploading the app on parents' and teachers' phones and laptops. Teachers were not trained to apply the Nour program. This was on purpose as the digital introduction to the program with instructions, videos etc. needs to be self-guiding. According to the teachers these instructions were clear, videos were qualified as very helpful, and the goals of the program and activities were well understood. The technical aspects of the Nour app (for instance speed, navigation ease) were considered good. Most teachers were well prepared, excepting 2 or 3 out of 10 teachers who, from the observations, seemed unprepared:

*Each one of us had their own preparation, but before the class, we would have a meeting to plan the program and decide who would start and who would take care of each activity. We supported each other, and it was an amazing and fruitful experience. (teacher)*





***Traditional teaching method:***

Children, even in kindergarten, sit at desks, mostly in rows. The Nour program is a social-emotional program with physical activities (next to digital ones), bodily experiencing, play (next to watching the animated stories and verbal discussions), etc. This would best suit a learning experience in a circle where everyone can see each other, and with a lot of action and initiative from the children themselves. Also, the dialogue would suit more, as opposed to one-way teaching that is practiced by many teachers, by doing a lot of talking and asking for specific answers from children.

***Time constraints:***

From the field visits it was noted that time constraint was an issue for some teachers. Especially in two schools, exercises were often done quickly, activities were skipped, or not done at all and not many children were given a turn. Overall (from all schools and observations) the time spent per session varied from 15 to 50 minutes (ideally each Nour adventure, including all activities, takes about 1 to 1.5 hours).

*It was difficult to move from one place to another, so that's why we chose to stay in the classroom' (teacher)*

*Everything was done in the class; we didn't go to the playground to save time. (teacher)*

Time constraints also impacted the completion of the full program before the summer holidays. Nour sessions were held once a week, though two schools increased to two or more times a week, and another school stopped and continued after the summer break. Teachers regretted not starting with the Nour program at the beginning of the school year as it would have been more relaxed for them.

The adventures and discussions afterwards were always done. The opening ritual of the 'flower waking up' at the beginning was done by most, but was forgotten by some at the end.

## Language

The language level (Arabic Fosha) was good and well understood by the children, also by the young ones.

## Making your Own Buddy

The activity 'making and using' your own buddy was done by only one school. Other teachers did not do this activity (or told the children they could do it at home), either because of time constraints, or because the goal of the activity was not clear to them. Older children felt it was not appropriate for them.

*... we didn't want to waste time creating the buddy (teacher)*

*I brought a rabbit to the class, so I didn't need to create one (teacher).*

## Parents' involvement and using the Nour app at home:

The Nour app was used a lot at home, mostly by the children themselves or with siblings. Watching the stories again was most popular. However, in approximately half of the homes the Nour app was not available, not used by parents or only used once or twice (see the rating of the Nour app under Quantitative Results). Reasons mentioned by parents and children in the focus group discussions were: time issues, not knowing about the program or how to download the app, not having attended the kick-off meeting, or not possessing a smartphone.

## Suggestions for change

Three suggestions were made most (by teachers):

- > Implement the Nour program from the beginning of the school year,
- > Provide more sessions, stories and activities (also mentioned by parents and children),
- > Change some details in the instructions and at the beginning of some of the activities.

Most suggestions were incorporated in the final version of the Nour program.

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## Discussion

### Strengths and limitations

The main limitation in this pilot is related to implementation, especially the fact that children's age range in the classes were broader than we initially anticipated. This made the number of children that fit into the target group actually smaller than we intended for. Moreover, this may have influenced the results as the Nour program was designed for 5 to 8 year olds. One could speculate that there is significant improvement in children despite the age differences; or that more children could have improved if the Nour program was applied to the appropriate age group only. Interestingly, the quantitative results show that both groups improved their social-emotional well-being (SDQ total score). Children above 8 years may even have benefited more from the Nour program, given their relatively lower baseline at the onset of the program, compared to the younger children. It is possible that among the older group of children there were children with special needs (other than lower academic grades) and with a disharmonic profile. It is, however, not clear how the older age group might have been of influence on the results, or for instance what the influence may have been in the dynamics between younger and older children.

Another implementation issue was the time constraint that was felt within the sessions, by teachers in two schools, in particular the time constraint to finish the Nour program before the summer holidays; and one school that had a break halfway the Nour program. This resulted in some differences between the schools in how the Nour program was applied and the incomplete application of the program (e.g. the making of a 'buddy' was omitted by most). Nevertheless, we have the impression that the core elements of the program have been addressed in all five schools.

A third limitation concerns the research design: we cannot compare the results in the group of children who attended the program with a control group who did not. However, the triangulation of quantitative and qualitative research methods is a strength of this study. With most results pointing in the direction of a positive impact, the effectiveness of the Nour program is credible. Also, because the program is built upon proven effective core elements in the first place. A next step towards a higher level of evidence would be to conduct a study with a control group design. Within this project this was not possible, because 'contamination' within the participating schools would have occurred, and including more schools into the project was not an option at the time.

## Overall conclusion and recommendations

Although only half of the participating children fell into the target age range for the Nour program, the program was highly appreciated by all and only positive effects on children (and parents) were reported. The program was set up for children aged 5 up to 8 years, but participating children of all ages benefited. The Nour program is easy for teachers to administer without specific training due to the self-guided nature of the program design and accompanying instructions.

Both quantitative and qualitative results show that children's social-emotional well-being and general mood improved significantly during the time they participated in the Nour program. Quantitative results showed statistical significance in improvements. This was also the case with the parenting competencies, even though not all parents downloaded or used the Nour app actively.

Our findings lead to the following recommendations:

- > Incorporate some minor changes in the final version and instructions for teachers:
  - clear instruction as to the order of the sessions and time needed,
  - add the importance of preparing for each session in advance,
  - take time with the children (e.g. with the opening and closing of the flower, do it slowly),
  - add the option of repetition of activities,
  - less talk from teachers, more dialogue and more 'experiencing' by children,
  - sit in a circle, do activities outside, when possible,
  - explain to teachers why it's important to make 'buddies' with the children.
  
- > Create guidance for schools on optimizing the success of Nour program implementation, such as:
  - implementing the Nour program from the beginning of the school year,
  - hosting an introductory meeting with parents and caregivers before the onset of the program to enhance their involvement and facilitate downloading the Nour app,
  - target children aged 4/5 to 8 years for program involvement; this may include involving older students as 'helpers' for the younger ones during digital activities, or adapting activities to better suit older learners.

After fine tuning, we recommend upscaling the Nour program to more schools and refugee centers in Lebanon and other MENA countries. To broaden the evidence base it will be wise to apply an experimental research design and add follow-up post-measures (e.g. after 3 months).

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